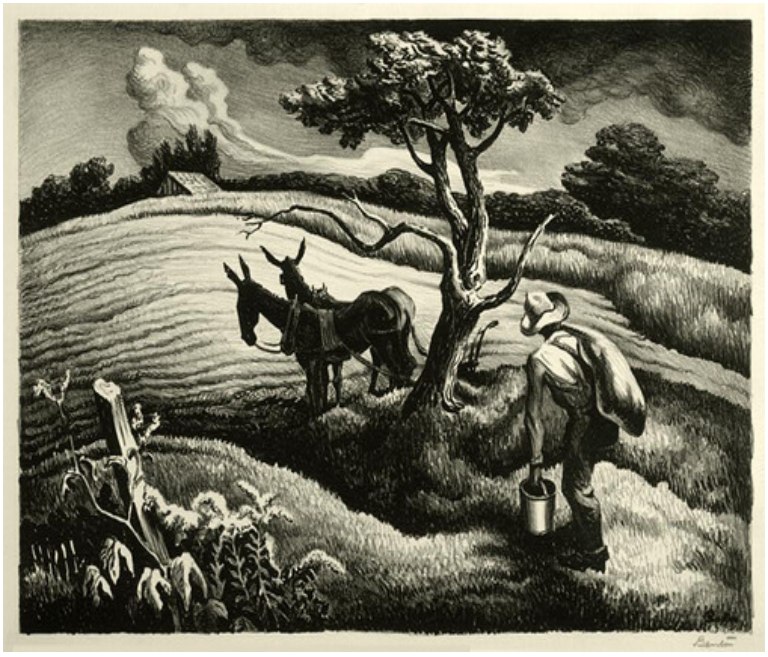
Nebraska Severe Weather Information Packet 2002



"Approaching Storm" (1938) - Thomas Hart Benton

NEBRASKA TORNADO FACTS

For the Year 2001

Tornadoes....62...22 above normal.

Deaths.... NONE **Injuries... 9** (most in Jackson (3))

Longest Track... 18 miles, (Hamilton and Polk counties, October 9)

Strongest... F4; (Seward County, June 13)

Most in a county... 5; (Thayer)

Days of occurrence.... 23 **Most in one day... 11** (October 9)

First tornado of the year... April 6; (Custer County)

Last touchdown of the year... October 9 - (Merrick county)

Most in a month... 14; (April and June**)**

Property Damage Estimate... $10 Million

---------- Monthly Tornado Totals ----------

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	14	6	14	13	1	3	11	0	0

Yearly Summary... April started the year on an active note with a couple of tornadoes on the 6th and then 6 more on the 11th. Another half dozen tornadoes occurred between the 20th and the 22nd. May looked to be heading in the same path with 4 twisters occurring on the 4th, but only 2 more were noted for the rest of the month. June, as is typically the most active month, saw the same number of tornadoes as April. The strongest tornado in the state happened on the 13th when a F4 passed very near to the town of Seward. Of the 14 tornadoes, nearly 65 percent occurred on the 13th. July was almost as active as June but there were events spread throughout the month. The most active days were the 16th and 17th. August was a rather quiet month but the one tornado we had caused lots of problems. An F2 tornado hit the town of Jackson in the northeast corner of the state and caused nearly 3 million dollars of property damage and injured 3 people. September also was somewhat quiet but an F3 tornado spun through Clay county causing nearly 1.5 million dollars in property damage. The tornado season ended with an impressive show of tornadoes on October 9th when about a dozen twisters roared through central sections of the state.

NEBRASKA SEVERE WEATHER AWARENESS WEEK
APRIL 1 - 5, 2002

Nebraska Tornado Statistics by County 1950 to 2001

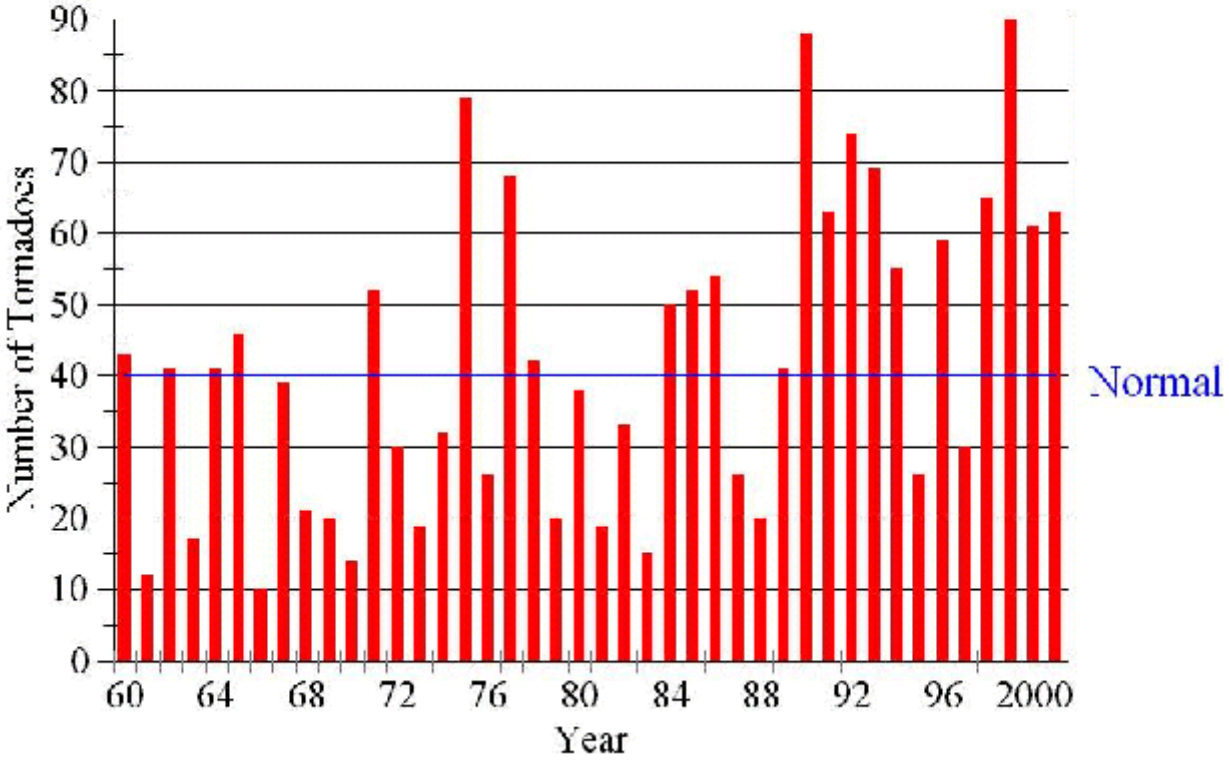
Number of Tornadoes, Deaths, and Injuries

County	Tor	Dth	Inj.
Adams	42	2	21
Antelope	34	0	0
Arthur	3	0	0
Banner	20	0	0
Blaine	4	0	2
Boone	20	4	55
Box Butte	34	0	0
Boyd	10	0	8
Brown	21	0	3
Buffalo	67	0	6
Burt	13	0	35
Butler	28	0	5
Cass	26	0	1
Cedar	20	0	6
Chase	13	0	3
Cherry	56	0	8
Cheyenne	46	0	2
Clay	34	0	3
Colfax	20	0	0
Cuming	23	0	4
Custer	68	0	18
Dakota	8	0	1
Dawes	30	0	0
Dawson	45	0	4
Deuel	22	0	0
Dixon	21	0	4
Dodge	20	0	12
Douglas	13	3	145
Dundy	18	0	2
Fillmore	28	0	3
Franklin	22	0	1
Frontier	21	0	2

County	Tor	Dth	Inj.
Furnas	22	1	0
Gage	40	0	22
Garden	16	0	1
Garfield	11	0	0
Gosper	14	0	5
Grant	13	0	1
Greeley	17	0	12
Hall	69	5	198
Hamilton	43	0	1
Harlan	15	0	0
Hayes	12	0	0
Hitchcock	24	0	1
Holt	46	0	4
Hooker	10	0	0
Howard	35	0	27
Jefferson	11	0	1
Johnson	16	0	0
Kearney	23	0	0
Keith	33	0	1
Keya Paha	10	0	0
Kimball	34	0	0
Knox	35	1	104
Lancaster	31	0	5
Lincoln	62	0	7
Logan	13	1	5
Loup	12	0	0
McPherson	4	0	0
Madison	38	6	55
Merrick	25	0	0
Morrill	35	0	1
Nance	21	0	0
Nemaha	15	1	9

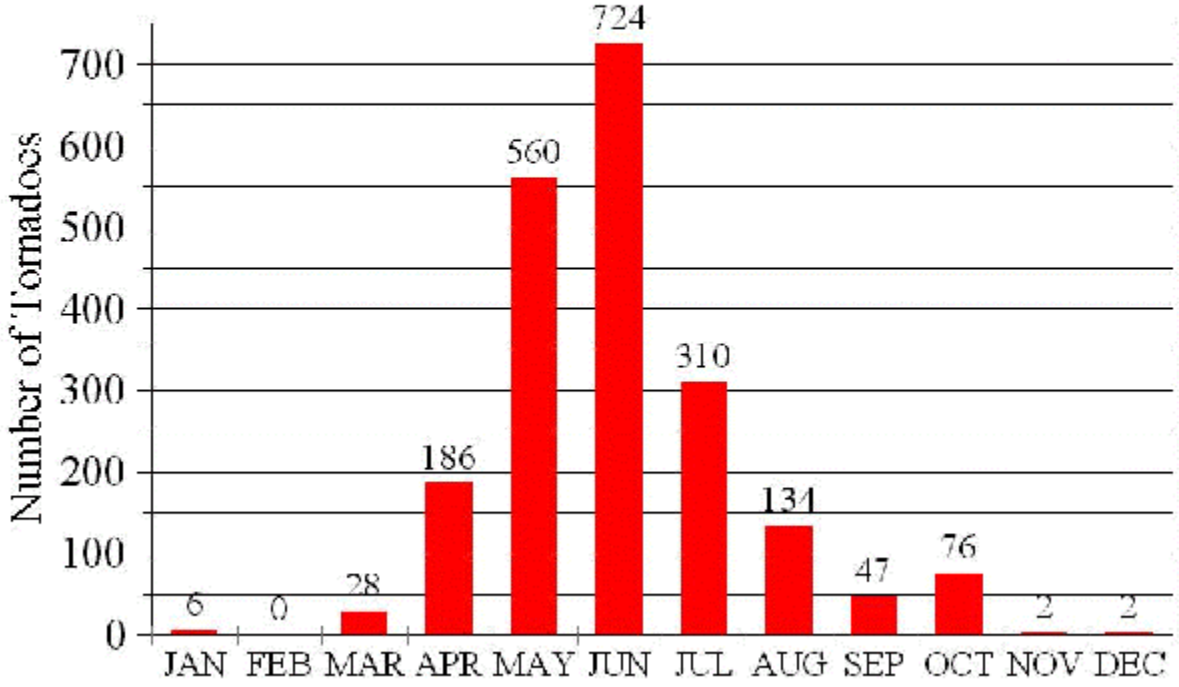
County	Tor	Dth	Inj.
Nuckolls	28	0	10
Otoe	23	0	3
Pawnee	14	0	1
Perkins	27	0	1
Phelps	25	1	5
Pierce	23	0	2
Platte	26	0	0
Polk	29	0	3
Red Willow	27	0	0
Richardson	15	0	0
Rock	9	0	1
Saline	23	0	0
Sarpy	7	2	38
Saunders	31	0	22
Scotts Bluff	47	2	48
Seward	28	1	17
Sheridan	45	0	8
Sherman	25	1	14
Sioux	15	0	0
Stanton	19	0	1
Thayer	42	5	86
Thomas	8	0	2
Thurston	12	0	0
Valley	26	12	4
Washington	14	0	2
Wayne	15	0	1
Webster	28	0	0
Wheeler	6	0	0
York	35	2	33

Nebraska Tornadoes

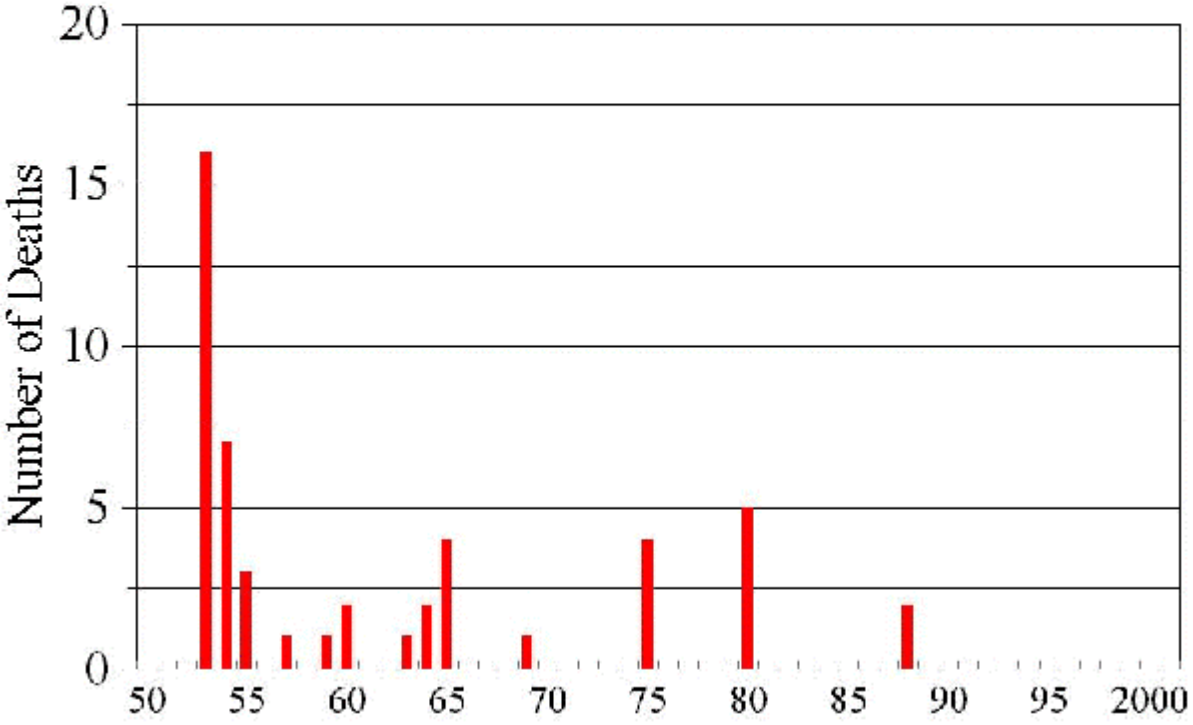


NEBRASKA TORNADOES

1950 TO 2001



Nebraska Tornado Fatalities
1950 - 2001



What is a tornado and their classification?

A violently rotating column of air in contact with the ground and extending from the base of a thunderstorm. A condensation cloud *does not need to reach to the ground* for a tornado to be present; a debris cloud beneath a thunderstorm is all that is needed to confirm the presence of a tornado, even in the total absence of a condensation funnel

Fujita Tornado Intensity Scale

Category F0: Gale tornado (40-72 mph); light damage. Some damage to chimneys; break branches off trees; push over shallow-rooted trees; damage to sign boards.

Category F1: Moderate tornado (73-112 mph); moderate damage. The lower limit is the beginning of hurricane wind speed; peel surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads.

Category F2: Significant tornado (113-157 mph); considerable damage. roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light-object missiles generated.

Category F3: Severe tornado (158-206 mph); Severe damage. Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off ground and thrown.

Category F4: Devastating tornado (207-260 mph); Devastating damage. Well-constructed houses leveled; structure with weak foundation blown off some distance; cars thrown and large missiles generated.

Category F5: Incredible tornado (261-318 mph); Incredible damage. Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile sized missiles fly through the air in excess of 100 yards; trees debarked; incredible phenomena will occur.

Nebraska Tornado Facts

•Nebraska averages 39 tornadoes a year.

•Nebraska's most number of tornadoes was 102 in 1999.

•Nebraska's peak month for tornadoes is June.

•May and June account for 63% of all of our tornadoes.

•May, June and July account for 78% of all of our tornadoes.

•There have been 115 Nebraska tornado fatalities since 1916.

•Every decade in the 1900's had tornado fatalities, but not the 1990's!

•ALL 93 Nebraska counties have been visited by tornadoes since 1950.

•Hall County's tornado density is 4 times greater than the state average and 3 times greater than the average for the Omaha and Lincoln areas.

•Most tornadoes from one storm, 7 in Grand Island, June 3, 1980.

•Nebraska has had tornadoes in every month but February.

•A tornado can move in any direction, slow or fast and even remain stationary.

•Omaha May May 5, 1975 and Grand Island June 3, 1980 are ranked 2nd & 9th in U.S. top 10 most costly tornadoes.

•Over 50% of our tornadoes occur between 4 PM and 8 PM.

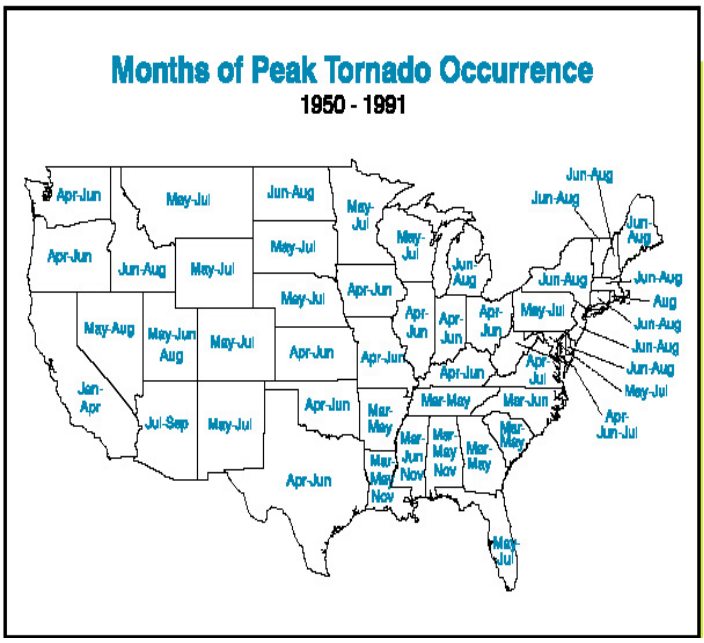
•We have never had a confirmed tornado between 8 AM and 9 AM in Nebraska.

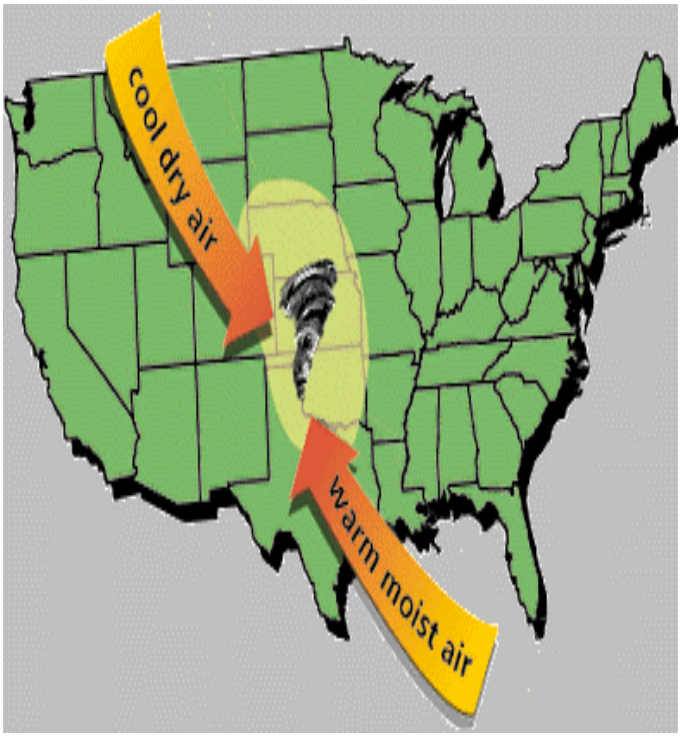
•Nebraska is ranked 5th in the U.S. for total number of tornadoes.

•Nebraska is ranked 23rd for number of tornado fatalities and 24th for number of tornado injuries.

6/13 Tornadoes in Eastern Nebraska (Seward)

Tornadoes can occur at any time of the year. In the southern states, peak tornado occurrence is in March through May, while peak months in the northern states are during the summer.





The American Meteorology Society's Glossary of Weather and Climate defines Tornado Alley as: "*The area of the United States in which tornadoes are most frequent*. It encompasses the great lowland areas of the Mississippi, the Ohio, and lower Missouri River Valleys. Although no state is entirely free of tornadoes, they are most frequent in the Plains area between the Rocky Mountains and Appalachians." On a local scale, tornadoes are the most destructive of all atmospheric phenomena, and Tornado Alley records more of them than anywhere else in the world. Many lives and much destruction has been caused by tornadoes, so quite a bit of research has been devoted to understanding where they occur, how to predict them, what causes them, etc.

Lightning - *The* Under-rated Weather Hazard

- **The Threat**
- Lightning is the #2 storm killer in the U.S., killing more than hurricanes or tornadoes. Only floods kill more. But the real story of lightning isn't the deaths, it's the injuries. Only about 10% of those struck are killed; 90% survive. But of the survivors, the large majority suffers life-long severe injury. These injuries are primarily neurological, with a wide range of symptoms, and are very difficult to diagnose. Lightning also causes about $5 billion of economic loss each year in the U.S.
- **The Solution**
- Public education is the key! The vast majority of lightning casualties can be easily, quickly, and cheaply avoided, if only the public knew what to do. The public needs increased awareness of the lightning hazard and increased knowledge of lightning safety.
- **Lightning Safety**
- Lightning safety is easy. But lightning safety is also inconvenient. It requires diligence and continual reinforcement and encouragement. Lightning safety is a multi-step process, with each step providing a decreasing level of protection – plan around the weather, and have a lightning safety plan.

No Place Outside is Safe Near Thunderstorms!

- Step 1:If you are planning to be outside, watch the weather forecast and know your local weather patterns. Plan around the weather to avoid the lightning hazard.

- Step 2:If you are going to be outside anyway, stay near proper shelter and use the '30-30 Rule' to know when to seek proper shelter.

- '30-30 Rule'When you see lightning, count the time until you hear thunder. If this time is 30 seconds or less, seek proper shelter. If you can't see the lightning, just hearing the thunder is a good back-up rule. Wait 30 minutes or more after hearing the last thunder before leaving shelter.

- Step 3:Seek proper shelter when required. Don't hesitate, seek shelter immediately. The lightning casualty stories are replete with events where people were about to make it to shelter when they were struck; if they'd just started a minute earlier, they'd have been safe.

- Proper Shelter:The best shelter commonly available against lightning is a large fully enclosed substantially constructed building, e.g. your typical house. Substantially constructed means it has wiring and plumbing in the walls. Once inside, stay away from any conducting path to the outside. Stay off the corded telephone. Stay away from electrical appliances, lighting, and electric sockets. Stay away from plumbing. Don't watch lightning from windows or doorways. Inner rooms are generally better.
- If you can't get to a house, a vehicle with a solid metal roof and metal sides is a reasonable second choice. As with a house, avoid contact with conducting paths going outside: close the windows, lean away from the door, put your hands in your lap, don't touch the steering wheel, ignition, gear shifter, or radio. Convertibles, cars with fiberglass or plastic shells, and open framed vehicles don't count as lightning shelters.

MYTH:
Cars are safe because the rubber tires insulate them from the ground.
TRUTH:
Cars are safe because of their metal shell.

Lightning - *The* Under-rated Weather Hazard con't…

- Step 4:If you can't get to proper lightning shelter, at least avoid the most dangerous locations and activities. Avoid higher elevations. Avoid wide-open areas, including sports fields. Avoid tall isolated objects like trees, poles, and light posts. Avoid water-related activities: boating, swimming (includes indoor pools), and fishing. Avoid golfing. Avoid open vehicles like farm tractors, open construction vehicles, riding lawnmowers, golf carts (even with roofs), etc. Avoid unprotected open buildings like picnic pavilions, rain shelters, and bus stops. Avoid metal fences and metal bleachers.

DO NOT GO UNDER TREES TO KEEP DRY DURING THUNDERSTORMS!

- Step 5:USE THIS AS A DESPERATE LAST RESORT ONLY! If you've made several bad decisions and are outside far away from proper shelter and lightning threatens, proceed to the safest location. If lightning is imminent, it will sometimes give a very few seconds of warning. Sometimes your hair will stand-up on end, or your skin will tingle, or light metal objects will vibrate, or you'll hear a crackling or "kee-kee" sound. If this happens and you're in a group, spread out so there are several body lengths between each person. If one person is struck, the others may not be hit and can give first aid. Once you've spread out, use the lightning crouch; put your feet together, squat down, tuck your head, and cover your ears. When the immediate threat of lightning has passed, continue heading to the safest spot possible. Remember, this is a desperate last resort; you are much safer having followed the previous steps and not gotten into this high-risk situation.

- Step 6:All deaths from lightning are cardiac arrest and stopped breathing. CPR and mouth-to-mouth-resuscitation are the recommended first aid, respectively.

MYTH:
Lightning victims are electrified. If you touch them, you'll be electrocuted.

TRUTH:
It is perfectly safe to touch a lightning victim to give them first aid.

NO LIGHTNING SAFETY GUIDELINES WILL GIVE 100% GUARANTEED TOTAL SAFETY, BUT THESE STEPS WILL HELP YOU AVOID THE VAST MAJORITY OF LIGHTNING CASUALTIES.

Severe Weather Terms

It is very important to understand the difference between a severe weather WATCH and WARNING. WATCHES and WARNINGS are issued for Tornadoes, Severe Thunderstorms, and Flash Floods. The term WATCH implies that people should be alert for the *possibility* of severe weather or flash flooding, and have a plan of action in case a storm threatens. When a WARNING is issued by the National Weather Service, this means that a tornado, severe thunderstorm, or flash flood has been detected by radar or observed by trained storm spotters or public officials. These warnings are for short-fuse events that only last an hour or so. People in the path of the storm are expected to take action to protect life and property when the term WARNING is heard.

The following table is a list of watches/warnings/statements that the NWS issues and the criteria used for issuing them:

PRODUCT	Description
TORNADO WATCH	**Conditions are favorable for the development of tornadoes in and close to the watch area. Watches are usually in effect for several hours, with 6 hours being the most common.**
TORNADO WARNING	**Tornado is indicated by radar or sighted by storm spotters. The warning will include** where the tornado is and what towns will be in its path.
SEVERE THUNDERSTORM WATCH	**Conditions are favorable for the development of severe thunderstorms in and close to the watch area. Watches are usually in effect for several hours, with 6 hours being the most common.**
SEVERE THUNDERSTORM WARNING	Issued when a thunderstorm produces hail 3/4 of an inch or larger in diameter and/or winds which equal or exceed 58 mph. Severe thunderstorms can result in the loss of life and/or property. Information in this warning includes: where the storm is, what towns will be affected, and the primary threat associated with the storm.
SEVERE WEATHER STATEMENT	**Issued when the forecaster wants to follow up a warning with important information on the progress of severe weather elements.**
SPECIAL WEATHER STATEMENT	**Issued to convey update information about severe weather watches.**
FLASH FLOOD WARNING	**Signifies a dangerous situation where rapid flooding of small rivers, streams, creaks, or urban areas are imminent or already occurring. Very heavy rain that falls in a short time period can lead to flash flooding, depending on local terrain, ground cover, degree of urbanization, degree of man-made changes to river banks, and initial ground or river conditions.**

PRODUCT	Description
HAZARDOUS WEATHER OUTLOOK	A product issued By the NWS to discuss the significant weather of the day, or possibly next 2 days. It describes potential weather hazards for an area, and is especially created for trained spotters and Emergency Managers. The Hazardous Weather Outlook will detail the type of severe weather expected (if any), timing, and expected location of the severe weather.
SHORT TERM FORECAST (NOWCAST)	A short term forecast designed to give specific, detailed forecast information for the next 1 to 6 hours on a county-by-county basis. Both routine and near-severe information are contained in these forecasts which are routinely issued several times per day, and more often during busy weather periods.